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TITLE : MANUFACTURE OF HIGHLY CORROSION RESISTANT NI BASE ALLOY

ABSTRACT : PURPOSE: To obtain an Ni base alloy superior in stress corrosion cracking resistance in high temp., high pressure water circumstance by annealing said alloy having a specified compsn., then cold working, next heat treating under a specified condition, further heat treating at just under and above the recrystallization temp.

CONSTITUTION: The Ni base alloy consisting of, by weight,  $\leq 0.07\%$  C,  $\leq 1.0\%$  Si,  $\leq 1.0\%$  Mn, 14–35% Cr, 50–80% Ni, 0.05–1.0% Ti, 0.1–1.0% Al,  $\leq 0.15\%$  N and substantially the balance Fe with inevitable impurities is melted and manufactured. Said material is cold worked by  $\geq 30\%$  reduction after the annealing, then heat treated at 675–725°C for 3–7hr, to aim the precipitation of Cr carbides and the recovery of Cr lack layer. Next, heated at 770–790°C just under the recrystallization temp. for  $\geq 1$ hr, if necessary, cold worked by  $\geq 30\%$  reduction, then heat treated by one time or more at 805–830°C just above said temp. for  $\geq 0.1$ hr. In this way, the extremely refining of crystal grains is aimed. The Ni base alloy can be used to steam generator heat transfer tube, etc., in pressurized water reactor.

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